DECLARATION UNDER 37 C.F.R. 1.131

We, James R. Doran, Paul W. Everett, Gordan G. Greenlee, and Ashraf N. Ibrahim do hereby declare that we are joint inventors of the subject matter which is claimed in our U.S. patent application S.N. 10/037,175 which was filed 11/09/2001 in the United States Patent and Trademark office.

We further declare that the invention disclosed and claimed in said application 10/037,175 was conceived by us in the United States and was reduced to practice in the United States by us and/or under our direction or supervision prior to June 8, 2004, the issuance date of U.S. Patent 6,748,386.

CONCEPTION

We further declare that prior to April 24, 2001, the invention disclosed and claimed in the above U.S. patent application was conceived by us in the United States and was thereafter reduced to practice in the United States by us and/or under our direction or supervision. In particular, we declare that an enterprise directory service apparatus was constructed which included a data store having a plurality of directory entries, a web server having an API coupled to the data store for sending a query to the data store and receiving a directory entry, and a wrapper coupled to the API for accepting the query from a user application.

We further declare that the above is evidenced by the following exhibits, true copies of which are included herewith, all of which have dates removed:

1. EXHIBIT A--IBM invention disclosure SMS8-2001-0025 which formed the basis for the present application S.N. 10,037,175;
2. EXHIBIT B--Enterprise Directory Solution White Paper, a five page document originally attached to Exhibit A;
3. EXHIBIT C--Architecture Diagram bparch1, also attached to EXHIBIT A. EXHIBITS A, B, and C describe the invention claimed in S.N. 10/037,175, and were prepared and submitted to our employer, International Business Machines Corporation prior to (April 24, 2001) the priority date of the cited U.S. Patent 6,748,386 by Li.

DUE DILIGENCE

Prior to April 24, 2001, the effective date of the Li document, we the inventors worked diligently on the invention recited in the claimed inventions, and the subsequent above-identified application, for filing in the U.S. Patent and Trademark Office on November 9, 2001. This included communication between IBM Counsel and the inventors from January 30, 2001 (submission of the invention to IBM Counsel), up to the date of filing of the executed application (November 09, 2001—filing of a patent application). All of us inventors were involved in working diligently in providing IBM Counsel the pertinent information relating to the inventive concept, including completing the attached invention disclosure of EXHIBITS A, B, and C.

Additional evidence of our diligence is provided in the following exhibits:

1. EXHIBIT D--A copy of an evaluation of our disclosure by IBM evaluator, Fred Rogers, recommending a search be done;
2. EXHIBIT E--a copy of a letter from IBM Patent Agent, John Pivnichny, Reg. No. 43,001, to us transmitting the search resulting documents to us for our review;
3. EXHIBIT F--a copy of a note from IBM paralegal, Jen Smith, faxed to patent draftsman, Michael Vorobyov, requesting completion of the formal drawings for our patent application; and
4. EXHIBIT G--A copy of an electronic communication (note) from IBM Patent Agent, John Pivnichny, to us documenting his investigation of inventorship with us.

Pertinent dates in the above documents have been removed. We declare that such dates all fall between January 30, 2001, and November 9, 2001.

Prior to the filing of the above-identified application in the U.S. Patent Office, Inventor Gordan Greenlee, communicated with IBM Counsel, on behalf of all of the inventors, in preparing such patent application based on the submitted disclosure. In particular, such communications occurred on June 13, 2001, and October 22, 2001. We all worked diligently on the preparation of the patent application with patent counsel until a final draft patent application was completed to our satisfaction. All of the inventors were involved in reviewing and finalizing the application for the present invention prior to the filing of the above-identified application as noted above.

A draft of the application was forwarded to us by IBM counsel, at which time we executed all appropriate documents for

filing in the appropriate governmental offices on November 9, 2001.

We declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further, that the statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

James R. Doran — 3/5/05 — Date

Paul W. Everett — 11-17-2004 — Date

Gordan G. Greenlee — 11/17/2004 — Date

Ashraf N. Ibrahim — 11/18/2004 — Date

Enterprise Directory Solution White paper IBM

Executive Summary

In the past two years, IBM has evolved its Enterprise Directory, from a pilot solution serving a population of a few thousand end users, to a Worldwide Enterprise Directory, accessible to all IBM employees. It has become the core directory for IBM, replacing a small conglomeration of other "legacy" directories that had been in use in IBM for several years. Today, the solution, referred to as "BluePages", has several different facets, including what the industry calls a "white pages solution", accessible to the IBM employee via the web, as well as broad spectrum application programming interfaces (APIs). The APIs encompass both industry standard "direct to LDAP" (Lightweight Directory Access Protocol) APIs, as well as support for a custom API, which we developed to support IBM's web-enabled aplications and Notes-based environment. The directory data contained in BluePages is always kept up to date, via a nightly update process. IBM's BluePages directory infrastructure has high availability, via the capability of redundant hardware, as well as 24 by 7 automated monitoring. This is critical, as it is the directory cornerstone to hundreds of IBM internal directory-enabled applications. We'll start this paper by discussing the BluePages end user interface, which gives the IBM employee the simple, but efficient, means to readily look up another employee's phone number, e-mail info, etc., from any web accessible browser.

BluePages as a "White Pages Directory" Solution

What is BluePages?

IBM's intranet directory solution has become collectively known as The IBM BluePages. There are actually several parts which fall under the name, including the directory datastore itself and the various methods of accessing this data. When this paper was written, the BluePages datastore utilized the IBM SecureWay eDirectory v2.1. For now let's focus on what most people consider to be *the* BluePages – the programs which access the directory datastore.

In order to support the maximum benefit from a unified intranet-based directory, more than one method of data access should be provided. The BluePages solution currently provides several programs for this reason, which include:

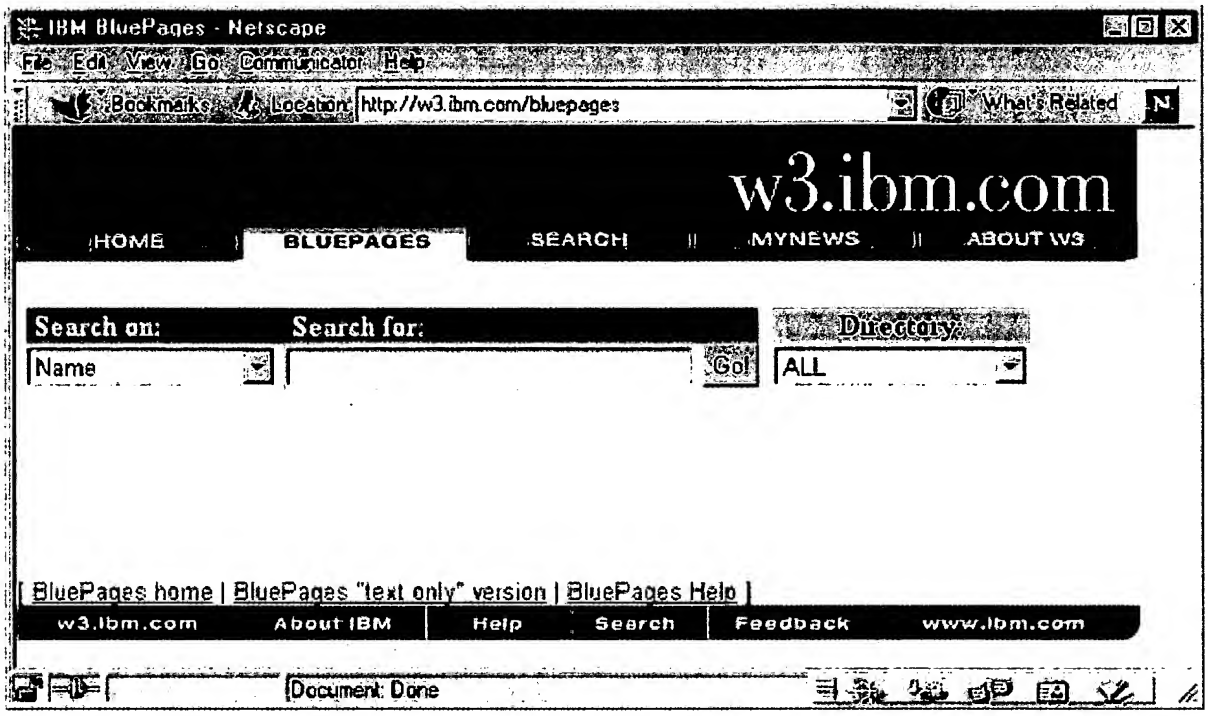
- the Graphical User Interface (GUI)
- the Low Bandwidth User Interface (LB)
- the Application Program Interfaces (APIs)

For the majority of IBM employees, the GUI *is* BluePages, and for that reason it will be covered first. The LB application is merely a version of the GUI without the graphics in an attempt to reduce the network throughput for modem users. The third bullet is plural as BluePages includes several methods for applications to access the directory data, and will be covered in more detail, in a future version of this paper.

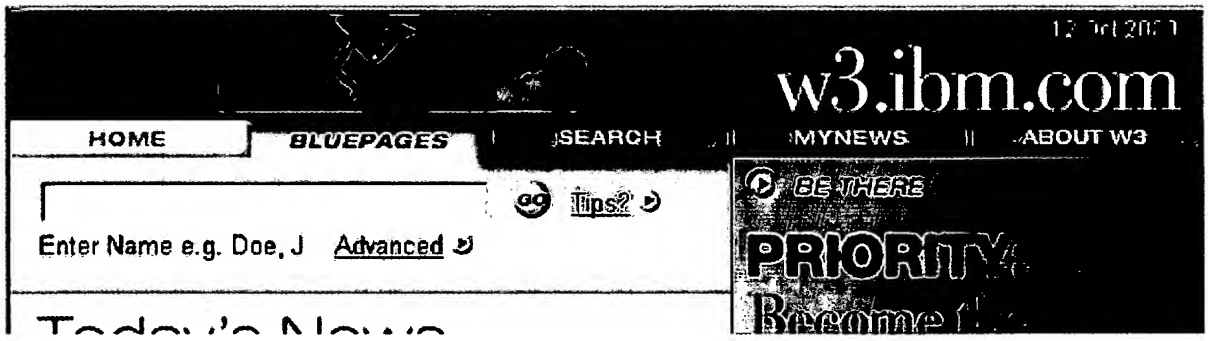
The BluePages GUI

The BluePages GUI is a fairly simple looking application, but there is no need for anything more. It has its own URL within the IBM intranet, w3.ibm.com/bluepages, which returns a frameset

that consists of a header, footer, and center frame. The header and footer frames hold HTML files that contain links to other pages and sites. The center frame holds the application itself. Basically, when an end user enters the above URL, they'll see this:



Because of the functionality that the BluePages GUI provides, there are other paths to access it. While most of the requests come in from the GUI homepage, several pages accept search criteria and submit queries to the application. The IBM intranet homepage is a perfect example (shown below).



In these cases, the page merely accepts the search criteria and passes it to the GUI application to handle the lookup and response. There are even more sites that just supply a link to the w3.ibm.com/bluepages URL.

What is contained within the GUI?

The BluePages GUI application consists of a text field, to enter search criteria; two drop-down selection boxes, to alter/restrict the search; and a button to submit the request. There are seven fields that can be used to search for an entry within the directory. When it comes time to designing your GUI, these can be whatever is desired depending on the information available and the business need. Within the BluePages GUI, these are:

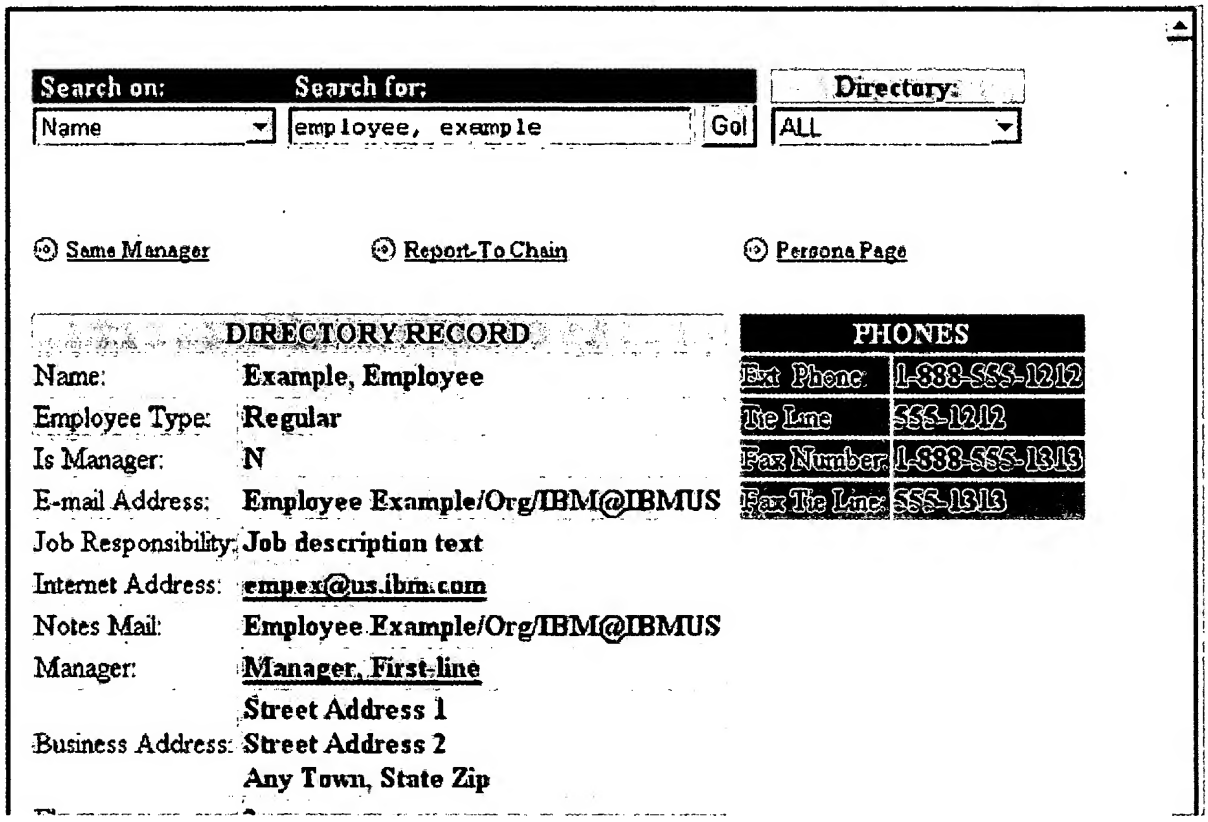
- Name
- Notes Mail
- Internet Address
- User ID
- Job Responsibility
- Tie Line (Internal Phone Number)
- External Phone
- Serial Number (Employee ID)

Some of this data is assigned to employees, while some is entered by the employee themselves. Some attributes are unique (or qualified unique with the help of a another attribute), while others are freeform, so the quality of the data returned will vary on the search criteria provided and the attribute the search is aimed against.

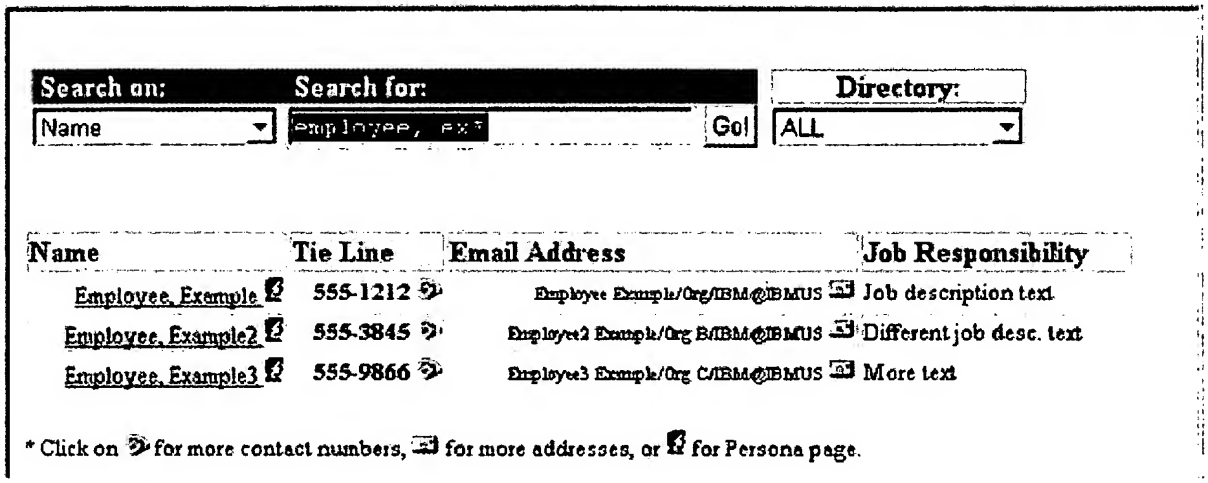
Searching for Employee Example

As an example, this section will walk-through the screens used to search for the unique entry for *Employee Example*. The first path into the application begins with an end user keying the full name (last name, first name) into the *Search For* text field and selecting the *Go!* button to submit

the request (or the end user could have used the <Enter> key on the keyboard). This returns the following.

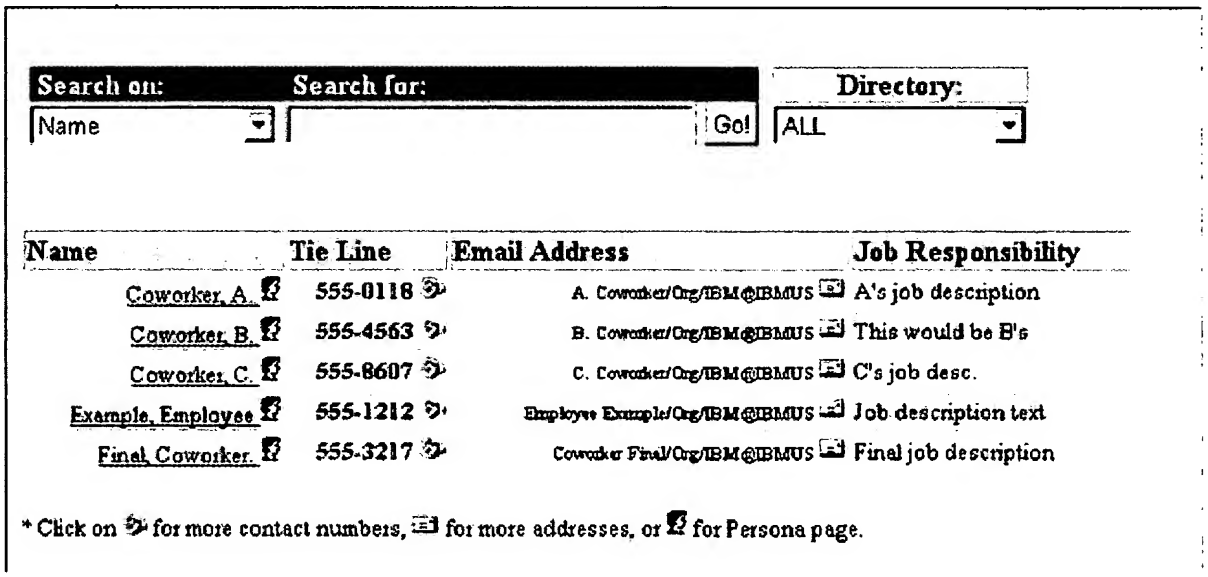


Since the search criteria specified enabled the GUI to uniquely identify a single entry in the directory, the complete entry is returned. This is a very simplistic example, and only represents the cleanest possible search. Let's say that we are not sure of the spelling of the employee's first name and only enter a partial first name utilizing a wildcard character to finish the name. This increases the likelihood that we will get more than one entry in our result set – it almost guarantees it. In our example, the search criteria is changed to "employee, ex*", and the GUI returns this.

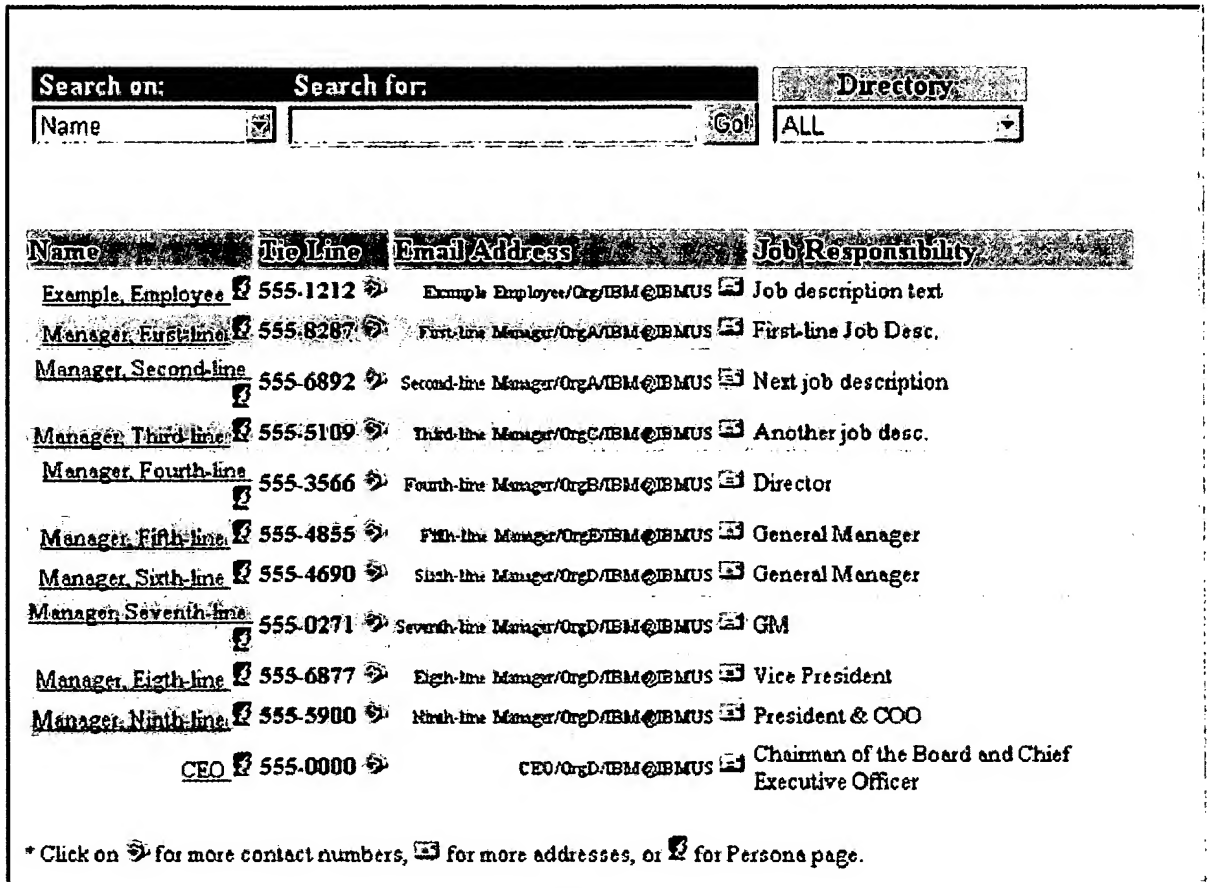


Since we added the wildcard to the first name, we receive three entries in our result set. Since the application is not certain which one you are looking for, it returns a partial set of information to help identify the employee. In the case when you are only looking for their E-mail Address, this would be sufficient (there is no need to pull all the information back). Once a name is selected, the full information for that employee is displayed as in the previous example.

You may have noticed a couple other links that were available on the employee's directory page. These are *Same Manager*, *Report-To* Chain, *Manages* (not shown in the example), and *Persona Page*. The Persona Page link sends the end-user to another application within the IBM intranet and will not be covered in this white paper. The remaining three all utilize the hierarchical structure that is present within the directory to produce listings of employees (similar to the multiple entry result set above). In our example, when the *Same Manager* link is selected, all of the employees that report to *Example Employee*'s manager are displayed.



Similarly, if we select the *Report-To Chain* link from the employee entry, we'd receive a listing of *Example Employee*'s managerial chain all the way up to the CEO.



In Closing

From the above examples, you now have a better idea about the functionality and data presentation of the IBM BluePages solution. Within IBM, it's one of the most frequently accessed applications, both from an end user and directory-enabled application standpoint. As part of building your company's e-business infrastructure, you may also have identified the need for a scalable, robust, web-accessible directory. If you would like to partner with IBM Global Services on inventing or enhancing your directory solution, please contact your IBM Marketing Rep to learn more.